did not change had a less severe K/L score. Radiographs showing bone remodeling did not differ from those showing progression or no change, but the numbers were small (Table 1).
Conclusions: If SBA was seen at baseline, over an 8 year period, 67% showed progression or had a TKR. In those knees not undergoing a TKR, we saw a considerable amount of radiographic bone remodelling or no radiographic change. Progression of pathology is not inevitable in knee OA, even if SBA is present.

Table 1: Baseline data on knee basis

	No Change n = 12	Reformation n = 4	Progression n = 6	TKR n = 26
K/L score				
Median (IQR)	3 (2 to 4)	4 (3 to 4)	4 (4 to 4)	4 (3 to 4)
Femoral attrition				
Median (IQR)	0 (0 to 0)	1 (0 to 1)	1 (0 to 1)	0 (0 to 1)
Tibial attrition				
Median (IQR)	1 (1 to 1)	1 (1 to 1)	1 (1 to 1)	1 (1 to 2)
Day pain				
Yes (n[%])	9 (75%)	4 (100%)	4 (100%)	24 (92%)
No (n[%])	3 (25%)	0 (0%)	0 (0%)	2 (8%)
Night pain				
Yes (n[%])	5 (42%)	3 (75%)	3 (50%)	7 (50%)
No (n[%])	7 (58%)	1 (25%)	3 (50%)	19 (73%)

272 EFFECTS OF EXERCISE VERSUS EXPERIMENTAL OSTEOARTHRITIS ON IMAGING OUTCOMES

C.E. Kawcak[1], D.D. Frisbie[1], N.M. Werpy[1], R.D. Park[2], C.W. McIlwraith[1]. *[1]Orthopaedic Research Center, Colorado State University, Fort Collins, CO, USA, [2]Colorado State University, Fort Collins, CO, USA*

Purpose: To identify changes in imaging outcomes in a controlled model of osteoarthritis versus exercise in order to differentiate adaptive and pathologic processes using clinical techniques.
Methods: 16 2-year-old horses were randomly assigned to an exercise control (n = 8) or an exercise osteoarthritis (n = 8) group. All horses had middle carpal joints arthroscopically explored and an osteochhondral fragment was induced in one middle carpal joint of the osteoarthritis group. All horses were treadmill exercised for the duration of the study (91 days). Clinical, radiographic, nuclear scintigraphic, computed tomographic and MRI examinations were performed and outcomes of these analyses were compared between groups. Imaging results were correlated to clinical, biomarker and gross pathologic results. Data were compared between 3 groups of joints: EXC = both joints from exercise control horses; OAC = sham operated joint from the exercise osteoarthritis group; and OAF = osteoarthritis affected joint from the exercise osteoarthritis group. A Mixed model ANOVA was used to analyze outcomes, and Pearson Correlation Coefficient used to evaluate relationships between dependent variables.

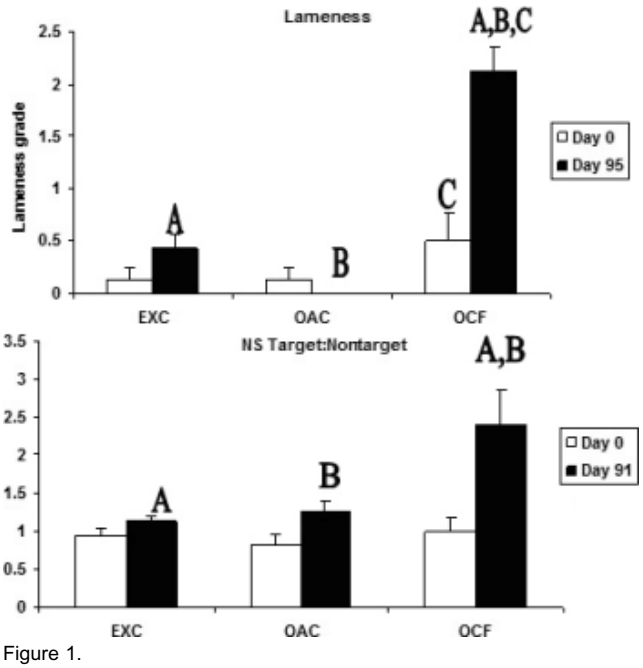

Figure 1.

Results: The osteoarthritis group had significant increases in clinical outcomes and most imaging parameters. Specifically, the osteoarthritis group showed significant increase in lameness, synovial effusion and response to flexion (Figure 1). Radiographic lysis and nuclear scintigraphic uptake were also significantly higher in the osteoarthritis group. There was very little change in subchondral bone density, but a significant change in subchondral bone edema, which was higher in the osteoarthritis group. Radiographic lysis, radial carpal bone edema and nuclear scintigraphic uptake were strongly correlated with clinical changes and radial carpal bone edema was strongly correlated with changes in type I and type II collagen found in the synovial fluid.
Conclusions: Osteoarthritis induced significant changes in imaging parameters beyond the adaptation seen with exercise. Bone edema detected with MRI was closely correlated with collagen biomarkers detected in the synovial fluid.

273 ASSOCIATIONS BETWEEN USES OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS, KNEE CARTILAGE LOSS AND KNEE CARTILAGE DEFECT DEVELOPMENT IN OLDER ADULTS: THE TASMANIA OLDER ADULTS COHORT (TASOAC) STUDY

C. Ding[1], F. Cicuttini[2], G. Jones[1]. *[1]University of Tasmania, Hobart, AUSTRALIA, [2]Monash University, Melbourne, AUSTRALIA*

Purpose: Effects of non-steroid anti-inflammatory drugs (NSAIDs) on knee osteoarthritis (OA) progression are unknown so far. This study is to determine the associations between uses of NSAIDs, knee cartilage loss and knee cartilage defect development over 2.9 years in older adults.
Methods: A total of 419 randomly selected subjects (mean 62 years, range 51−80, and 50% female) were studied. T1-weighted fat-suppressed MRI on right knee was performed, and knee cartilage volume at medial and lateral tibial sites and knee cartilage defects (0−4 scale) were measured at baseline and 2.9 years later. Regular medication uses including conventional NSAIDs and selective cyclooxygenase-2 (COX-2) inhibitors in the last month were recorded by questionnaire. Multivariable linear or logistic regression methods were used for statistical analyses.
Results: Compared with non users of NSAIDs (n = 346), users of COX-2 inhibitors (n = 49) had *decreased* knee cartilage defect development in the medial tibiofemoral compartment (OR 0.39, 95% CI 0.15, 0.99) but no greater loss of cartilage volume ($\beta = -0.03\%$ per annum, pa and +0.88% pa at medial and lateral tibial sites, $P > 0.05$), whereas users of non-selective NSAIDs (n = 24) were associated with *increased* knee cartilage defect development in both medial (OR: 3.07, 95% CI: 1.04, 9.09) and lateral (OR: 2.61, 95% CI: 1.01, 6.77) tibiofemoral compartments, but again no greater loss of cartilage volume ($\beta = -1.09\%$ pa and −1.10% pa at medial and lateral tibial sites, $P > 0.05$). Comparing users of COX-2 inhibitors with users of non-selective NSAIDs, the latter had higher knee cartilage volume loss ($\beta = -4.85\%$ pa, 95% CI: −9.00, −0.70 at medial tibia; and $\beta = -4.61\%$, 95% CI: −8.11, −1.12 at lateral tibia). All models were fully adjusted for potential confounders including knee pain, sex, age, BMI, smoking, steps each day, sun exposure, tibial bone area, radiographic OA, and rheumatoid arthritis.
Conclusions: This study suggests that non-selective NSAIDs may have deleterious effects while selective COX-2 inhibitors may have beneficial effects on knee joint structure. Randomized controlled trials using MRI techniques to confirm the finding are warranted.

274 REDUCED RATES OF PRIMARY JOINT REPLACEMENT FOR OSTEOARTHRITIS IN ITALIAN AND GREEK MIGRANTS TO AUSTRALIA: THE MELBOURNE COLLABORATIVE COHORT STUDY

Y. Wang[1], J. Simpson[2], A. Wluka[1], D. English[2], G. Giles[3], S. Graves[4], **F. Cicuttini[1]**. *[1]Monash University, Melbourne, AUSTRALIA, [2]University of Melbourne, Carlton, AUSTRALIA, [3]The Cancer Council Victoria, Carlton, AUSTRALIA, [4]AOA National Joint Replacement Registry, Adelaide, AUSTRALIA*

Purpose: Racial and ethnic disparities in rates of total joint replacement have been described, but little work has been done in well-established migrant groups. The aim of this study was to compare the rates of primary joint replacement for osteoarthritis for Italian and Greek migrants to Australia and Australian-born individuals.
Methods: 39,023 participants aged 27−75 years, born in Italy, Greece, Australia, and United Kingdom were recruited for a prospective cohort study between 1990 and 1994. The outcome measure was occurrence